SYNOPSIS OF THE SPECIES OF NYSSON INHABITING AMERICA, NORTH OF MEXICO.

By WILLIAM J. FOX.

Handlirsch's monograph of this genus is, unfortunately, as far as the American species are concerned, not as complete as his papers on the allied genera. This is accounted for by the scarcity of American material at his command, he having had but eight of the twenty-one species then known from this region, two of which were described by him for the first time. This lack of material probably accounts for the absence from his paper of synoptic tables of our species; and it is hoped the present paper will remedy this want. To be sure, our species were tabulated by Cresson in 1882, but as our knowledge of characters, both specific and sectional, has been increased since then, the present paper can hardly be considered superfluous.

The Tribe Nyssonini consists of the genera *Alyson*, *Didineis* and *Nysson*, of which the two former were tabulated in 1894 *

FEMALES.

1. Hind tibiæ more or less serrated 2
   Hind tibiæ not serrated 4
2. Metanotum (postscutellum) bilobate; size rather large; abdomen black, with yellowish maculations 3
   Metanotum without lobes; size small; first two segments of abdomen red. **solani.**
3. Legs red ..... **texanus.**
   Legs black ..... **fuscipes.**
4. Submedian (anal) cell of hind wings terminating somewhat beyond, or at the origin of the cubital vein 5
   Submedian cell of hind wings terminating before the origin of the cubital vein 11
5. Scutellum margined, though not strongly, at the sides, covered with large, sparse, shallow punctures (spots on first abdominal segment largest) 6
   Scutellum not margined at the sides, strongly, and usually closely punctured. 8
6. Second ventral segment at the base truncate, viewed from the side almost forming a right angle ..... **spinosus.**
   Second ventral segment otherwise formed 7
7. Pygidial area broad, subtruncate at tip, with large, somewhat confluent punctures; lateral spots of first dorsal segment covering almost the entire segment ..... **plagiatus.**

* Entomological News, VII.

Pygidial area narrower, rounded at tip, longitudinally rugoso-punctate; lateral spots of first dorsal segment confined to apical portion of the segment, transverse ..... **æqualis.**

8. Clypeus bituberculate at apex; punctuation of the head and thorax very coarse, almost rugose (medial and hind femora more or less red) .... **compactus.**

Clypeus not tuberculate; punctuation strong, but rather close and not rugose. 9

9. Abdomen not at all red 10

Abdomen with the two basal segments more or less reddish (punctuation of head and thorax very close, appearing granular; punctuation of abdomen subtile). **rusticus.**

10. Punctuation of head and dorsulum distinctly separated, that of the abdomen strong and very distinct ..... **lateralis.**

Punctuation of head and dorsulum, particularly the former, very close, that of abdomen rather subtile, most distinct on first segment..... **fidelis.**

11. Scutellum distinctly margined laterally..... 12

Scutellum not margined laterally..... 15

12. Abdomen not at all reddish..... 13

Abdomen reddish basally..... 14

13. Basal enclosure of middle-segment with coarse, irregular ridges, thereby making the enclosure reticulate; abdominal punctures strong, but not very deep. **opulentus.**

Basal enclosure of middle-segment with the ridges regular, longitudinal on basal two-thirds, then oblique; abdominal punctures deep..... **mellipes.**

14. Scutellum coarsely rugoso-punctate; wings clear; a yellow line on pronotum and scutellum ..... **bellus.**

Scutellum with coarse, longitudinal folds; wings subfuscous; no yellow on pronotum or scutellum (punctuation of head and dorsulum unusually coarse). **basilaris.**

15. Black, with pale markings; a divided tubercle between the ocelli; punctuation of head and thorax strong and separated ..... **albomarginatus.**

Black, with abdomen red; space between ocelli not tuberculate; punctuation of head and thorax very close and rather fine..... **bicolor.**

MALES.

Hind tibiæ more or less serrated; last dorsal segment 4 dentate 2

Hind tibiæ not serrated; last dorsal bidentate 3

2. Legs red ..... **texanus.**

Legs black ..... **fuscipes.**

3. Second ventral segment truncate at base, viewed from the side almost forming a right angle..... **spinosus.**

Second ventral segment otherwise formed..... 4

4. Submedian cell (anal area) terminating beyond or at the origin of the cubital vein 5

Submedian cell terminating before the origin of the cubital vein 13

5. Last dorsal segment ciliated between the teeth 6

Last dorsal segment not ciliated between the teeth..... 7

6. Last dorsal segment not prominent between the teeth, subtruncate; lateral spots on first dorsal segment large, covering almost the entire segment. **plagiatus.**
Last dorsal segment prominently angulate between the teeth; spots on first segment transverse, confined to apical portion of segment ..... **æqualis.**
7. Clypeus bituberculate at apex; punctuation of head and thorax very coarse almost rugose (hind femora, in part, reddish) ..... **compactus.**
Clypeus not tuberculate at apex 8
8. Abdomen not at all reddish 9
Abdomen reddish basally (clypeus and scape beneath yellow; abdomen with sparse, shallow punctures) ..... **rusticus.**
9. Apical antennal joint scarcely enlarged or curved, obtuse at apex, the preceding joint not produced at apex beneath (tegulæ black; dorsulum rugosely punctured; punctures of abdomen distinct but feebler than in *lateralis*). **simplicicornis.**
Apical antennal joint enlarged, strongly curved, truncate at apex, the preceding joint produced somewhat beneath at apex 10
10. Clypeus and scape yellow (punctures of abdomen rather subtile) 11
Clypeus black 12
11. Antennæ short, stout, when stretched back not reaching the tegulæ; form rather robust, tegulæ dark ..... **tristis.**
Antennæ longer, slenderer, when stretched back reaching, or almost reaching, the tegulæ; form narrower; tegulæ pale-testaceous, or with a yellow spot. **fidelis.**
12. Abdomen with unusually strong punctures, those of the front distinct and separated; scutellum marked with extremely large, sparse punctures. **lateralis.**
Abdomen subtilely punctured; punctuation of front close, so that it has a granular appearance; scutellum coarsely rugose ..... **subtilis.**
13. Apical antennal joint obliquely truncate at tip, more or less curved 14
Apical antennal joint rounded at tip, or obtusely truncate, not or scarcely curved; markings white; first segment with a continuous fascia. **albomarginatus.**
14. Abdomen not all reddish, legs reddish testaceous; enclosure of the middle segments with its ridges evenly spaced ..... **mellipes.**
Abdomen reddish basally; coxæ, trochanters and femora black, tibiæ and tarsi pale ..... **pumilus.**

1. **Nysson texanus** *Cress.*

Nysson texanus CRESSON, Tr. Am. Ent. Soc. IV, p. 223, ♂ ♀.
Paranysson texanus CRESSON, ibid. IX, p. 273.
Nysson texanus HANDLIRSCH, Sitzb. Akad. d. Wissensch. Wien, Math. Naturw. Classe, I Abth. XCV, Bd. p. 297.

Texas, Nebraska; Montana; Lewiston, Idaho (Aldrich); Las Cruces, New Mexico (Cockerell). Recorded by Handlirsch from Georgia and South Carolina.

2. **Nysson fuscipes** *Cress.*

Paranysson fuscipes CRESSON, Tr. Am. Ent. Soc. IX, p. 274, ♂ ♀.
Nysson fuscipes HANDLIRSCH, l. c. p. 301; pl. 4, f. 23.

Washington; Oregon; California. As pointed out by Handlirsch, this species seems confined to the extreme Western States, in fact, those bordering on the Pacific Ocean.

3. **Nysson solani** *Ckll.*

Nysson solani COCKERELL, Tr. Am. Ent. Soc. XXII, p. 294, ♀.

Las Cruces, New Mexico (Cockerell). This species has the hind tibiæ serrated, agreeing in that respect with the two preceding species, but the metanotum is not lobed. It seems to be isolated from the other species as far as its relationship is concerned. The only known specimen lacks the second (petiolated) submarginal cell, which deficiency I consider to be but an anomaly.

4. **Nysson spinosus** *Forster.*

Sphex spinosa FORSTER, Novæ Species Insect, p. 87.
Nysson spinosus HANDLIRSCH, l. c. p. 337, pl. IV, f. 5, 17, 25–28, pl. V, f. 11. ♀ ♂. (For full synonymy see this work.)

North America (Handlirsch). I have only seen European specimens for which I am indebted to Herr F. F. Kohl, of Vienna.

5. **Nysson plagiatus** *Cress.*

Nysson aurinotus PACKARD (non Say), Proc. Ent. Soc. Phila. VI, p. 440, ♂
Nysson plagiatus CRESSON, Tr. Am. Ent. Soc. IX, p. 276, ♂ ♀; HANDLIRSCH, l. c. p. 348, pl. 4, f. 11, 21, pl. 5, f. 10.

Illinois; Indiana; Louisiana (Handlirsch); Texas; Washington. Our largest species.

6. **Nysson æqualis** *Patt.*

Nysson æqualis PATTON, Can. Ent. XI, p. 212, ♂; HANDLIRSCH, l. c. p. 350, pl. 4, f. 10, 22, ♀ ♂.

Massachusetts (Patton); Camden County, New Jersey (in July); Baltimore, Maryland, and South Carolina (Handlirsch); Georgia, Illinois.

7. **Nysson aurinotus** *Say.*

Nysson aurinotus Say, Boston Journ. Nat. Hist. I, p. 368; HANDLIRSCH, l. c. p. 353, ♂, pl. 5, f. 13.

Indiana (Say); Illinois (Handlirsch). Unknown to me.

8. **Nysson Frey-Gessneri** *Hdl.*

Nysson Frey-Gessneri HANDLIRSCH, l. c. p. 355, ♂, pl. 5, f. 12.

Georgia (Handlirsch). Unknown to me.

9. **Nysson compactus** *Cress.*

Nysson compactus CRESSON, Tr. Am. Ent. Soc. IX, p. 278, ♀ ♂.

Washington State.

10. **Nysson tristis** *Cress.*

Nysson tristis CRESSON, Tr. Am. Ent. Soc. IX, p. 281, ♂.

Washington State.

11. **Nysson lateralis**, *Pack.*

Nysson laterale PACKARD, Proc. Ent. Soc. Phila. VI, p. 440, ♂.
Nysson lateralis PATTON, Can. Ent. XI, p. 213, ♀.

Canada (Provancher); Maine, New Hampshire, Virginia, Illinois (Patton).

12. **Nysson subtilis**, sp. nov.

♂.—Cheeks margined posteriorly beneath, coarsely punctured; front closely punctured, appearing strongly granular, feebly ridged above antennæ; between ocelli flat, not tuberculate; clypeus strongly punctured, transversely depressed before apical margin, the latter subtruncate; antennæ stout, scape shining, strongly punctured, flagellum opake, the last joint curved, nearly as long as the three preceding united, obliquely truncate at tip, preceding joint slightly produced beneath at apex; dorsulum with strong, tolerably well separated, punctures; scutellum rugose, no margined laterally; mesopleuræ strongly rugoso-punctate; middle-segment with the spines sharp, slenderer than in *lateralis*, enclosure longitudinally and somewhat irregularly ridged; hind tibiæ not spinose; wings subhyaline, nervures dark, petiole of second submarginal cell a little shorter than the height of cell, submedian cell of posterior wings terminating a little beyond the origin of the cubital vein; punctures of abdomen subtile, much feebler than in *lateralis*, stronger on first segment, second ventral strongly convex, particularly toward the base, but not truncate anteriorly, last dorsal bidentate as in the allied species. Black, the tubercles, and a transverse spot at each side of the first three dorsal segments, yellow; tarsi and anterior tibiæ in front, testaceous; clypeus and anterior orbits with silvery pubescence. Length 6½ mm.

Algonquin, Illinois (Nason). Easily distinguished by the entirely black front and subtile punctuation of the abdomen.

13. **Nysson rusticus** *Cress.*

Nysson rusticus CRESSON, Tr. Am. Ent. Soc. IX, p. 283, ♂ ♀.

Washington; Moscow, Idaho (Aldrich); Colorado.

14. **Nysson nigripes** *Prov.*

Nysson nigripes PROVANCHER, Add. Hym. Quebec, p. 269, ♂.

Hull, Canada (Provancher). Unknown to me. Placed near *rusticus* provisionally, as it may belong elsewhere.

15. **Nysson rufiventris** *Cress.*

Nysson rufiventris CRESSON, ibid, p. 283, ♀.

Montana; Colorado.

16. **Nysson fidelis** *Cress.*

Nysson fidelis CRESSON, ibid, p. 282, ♀ ♂.

Montana; Colorado.

17. **Nysson simplicicornis,** sp. nov.

♂.—Cheeks not margined posteriorly beneath, rather finely punctured; front with distinct, somewhat separated and strong, punctures, slightly prominent above the antennæ; between ocelli flat, not tuberculate; clypeus transversely depressed before apical margin, which is subtruncate; antennæ slenderer than in the allied species scape shining, punctured, flagellum opaque, the apical joint not curved or enlarged, obtuse at tip, the preceding joint not at all produced at apex beneath; dorsulum with coarse shallow punctures, or rugoso-punctate; scutellum coarsely punctured, not margined laterally; mesopleuræ coarsely punctured but less so than the dorsulum; middle segment with the spines sharp, slender, enclosure irregularly ridged; hind tibiæ not spinose; wings sub-hyaline, nervures and stigma black, petiole of second submarginal cell shorter than the height of cell, submedian cell of posterior wings terminating at the origin of the cubital vein, punctures of the abdomen distinct, finer and closer, however, than in *lateralis*, second ventral segment strongly convex, with the punctures sparser, last dorsal bidentate. Black; spot at apex of four anterior femora beneath and on dorsal segments 1–3, whitish; mandibles reddish medially; tarsi somewhat testaceous; clypeus and sides of face with dense silvery pubescence. Length 5 mm.

Ingham County, Michigan (G. C. Davis), July 17th. Smaller than the allied species with black abdomens and is at once separated by the different terminal antennal joint.

18. **Nysson opulentus** *Gerst.*

Nysson opulentus GERSTÄCKER, Abh. Naturh. Gesell. zu Halle, X, p. 114, ♂

Nysson opulentus CRESSON, Tr. Am. Ent. Soc. IX, p. 279, ♀.

Nysson opulentus HANDLIRSCH, l. c. p. 357, ♀ ♂.

New York. The ♂ I have not seen.

19. **Nysson mellipes** *Cress.*

Nysson mellipes CRESSON, Am. Ent. Soc. IX, p. 279, ♂ ♀.

Colorado; Dakota; Montana.

20. **Nysson tuberculatus** *Hdl.*

Nysson tuberculatus HANDLIRSCH, l. c. p. 363, ♂ ♀.

Wisconsin and South Carolina (Handlirsch). Unknown to me. It is said to be close to *basilaris*, but seems to differ somewhat in the punctuation of abdomen, greater extent of black on legs and presence

of pale spots on scutellum. I am inclined to regard *basilaris* and *tuberculatus* as synonymous, however.

21. **Nysson basilaris** *Cress.*
Nysson basilaris CRESSON, Tr. Am. Ent. Soc. IX, p. 281, ♀.
Georgia.

22. **Nysson bellus** *Cress.*
Nysson bellus CRESSON, ibid. p. 280, ♀.
Montana and Texas.

23. **Nysson pumilus** *Cress.*
Nysson pumilus CRESSON, ibid. p. 405, ♂.
Nevada.

24. **Nysson albomarginatus** *Cress.*
Nysson albomarginatus CRESSON, ibid. p. 278, ♂ ♀.
Nevada. Easily distinguished by the pale, continuous fasciæ of abdomen. The unique ♀ type has also two, tranverse, pale spots on first segment, near base. These may not be constant in a series, however.

25. **Nysson mœstus** *Cress.*
Nysson mœstus CRESSON, ibid. p. 280, ♂.
Washington State.

26. **Nysson bicolor** *Cress.*
Hyponycson bicolor CRESSON, ibid. p. 284, ♀.
Nysson bicolor HANDLIRSCH, l. c. p. 402.
Washington State. The unique type of this species lacks the third submarginal cell.

SOME NOTES ON LOCUST STRIDULATION.

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Every observer of outdoor Nature is familiar to a greater or less extent with the peculiar rattling or crackling sounds produced by certain locusts or "grasshoppers" in flight. When at rest these insects are quite inconspicuous, their colors resembling closely the prevailing tints of their surroundings, but when in flight many of them attract notice not only by their stridulation, but also by their strikingly colored wings in which yellow and red with black markings predominate.